Some data in regard to this point are presented. While this is a preliminary paper, the results obtained and the statements as to methods of attack on a problem of this kind are suggestive to workers in this field.—S. V. EATON.

Response of apple trees to nitrogen fertilizers.—Nitrogenous fertilizers have been found by many investigators to cause increased vegetative growth of fruit trees and increased yields of fruit, but the experiments establishing these facts have been largely empirical. A bulletin by HOOKER[15] records the results of experiments planned to get at the chemical changes in the tree resulting from nitrogenous fertilizers. He finds that the spring application of nitrogenous fertilizers causes increased setting of apples, accompanied by an increased nitrogen content of the spurs. In the case of non-bearing trees, increased vegetative growth is caused. Different kinds of quickly available fertilizers had much the same effect. At the time of fruit bud differentiation, the spurs of the spring fertilized trees showed less starch than the spurs of the check trees, so that the spring application of nitrogenous fertilizers would not be expected to favor this process. The accumulation of nitrogen in the spurs just before growth starts in the spring is the greater the later the nitrogenous fertilizers have been applied the preceding season. It is a pleasure to see the horticulturists thus attacking the fundamental problems of their subject.—S. V. EATON.

Vegetation of Illinois.—The recent publication of the 14th annual volume of the Transactions of the State Academy of Science[16] shows about one-third of the volume devoted to reports of botanical and plant ecological studies. The State Forester, R. B. MILLER, discusses some of the undeveloped forest resource, of the southern portion of the state, and in collaboration with GEO. D. FULLER examines in some detail the conditions of tree growth and the forest types existing in a portion of Alexander County. W. G. WATERMAN makes a preliminary report on the bogs of the northern portion of the state, while W. B. MCDOUGALL contributes an interesting key to some forest tree roots. A more extensive investigation is reported by H. DEFOREST, who has studied the woodlands along the Rock River in the northwestern portion of the state. MARY E. RENICH contributes a study of growth as related to size of seed, and A. B. REAGAN has some interesting notes on the plants of the Bois Fort Indian Reservation, Minnesota.—GEO. D. FULLER.

Mosaic disease of tobacco.—PALM[17] has investigated the mosaic disease of tobacco, and has reached the conclusion that it is due to a causal organism.

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[15] HOOKER, H. D., Certain responses of apple trees to nitrogen applications of different kinds and at different seasons. Mo. Agric. Exp. Sta. Res. Bull. 50. 1–18. 1922.

[16] Transactions of the Illinois State Academy of Science. Fourteenth annual meeting. 1921. 14: pp. 326. 1922.

[17] PALM, B. T., Is the mosaic disease of tobacco a chlamydozoonose? English translation by P. G. WILSON. Bull. Deliproefstation Medan-Sumatra. no. 15. pp. 10. 1922.

His preparations of the diseased tissue show fairly large irregularly shaped corpuscles and very small granules, both clearly foreign elements, being entirely absent in healthy tissue. The author agrees with IWANOWSKI as to the probable interpretation of the foreign elements, namely, "that the minute granules are very small bacteria, carriers of the virus, and further that the irregularly shaped corpuscles must be considered as a pathological product of reaction of the virus carrier on the cell plasm." This causal organism is thought to be a species of *Strongyloplasma*, and is named *S. Iwanowski* in honor of its original discoverer. —J. M. C.

Effect of age on plant structure.—Miss TELLEFSEN[18] has studied the effect of age upon certain tissues of *Salix nigra*. This species was chosen chiefly because of the comparative ease with which specialized tissues, as roots, will develop from the meristematic tissue of cuttings under laboratory conditions. Numerous tables of measurements are given, and some of the conclusions are as follows. Cuttings from younger trees rooted in less time than those from older trees, and also leaves appeared earlier. Epidermal and cortical cells of the root become smaller as the parent tree becomes older, and xylem and meristematic become larger. The average area of vein islets in leaves from older trees is smaller than average vein islet areas of leaves from younger trees, the amount of vascular tissue increasing with senility, thus reducing the average area of vein islets.—J. M. C.

Leaf-skin theory.—Miss SAUNDERS[19] has reached the conclusion that the surface tissue of the seed plant shoot is of foliar origin, meaning that the leaves are decurrent, not merely those that are usually called so, but all leaves. In the same way the superficial tissue of the hypocotyl are derived from the cotyledons. This so-called leaf-skin is formed by the "downward growth and extension of the leaf primordium, which keeps pace with the extension of the central axis with which it is fused. In the case of flowering stems the leaf-skin is formed by the bracts (when present) and the outermost sepals." Miss SAUNDERS has gone into many details as to the extension of a single leaf surface in relation to the different types of phyllotaxy, the various surface patterns developed, and other features.—J. M. C.

Intrafascicular cambium in monocotyledons.—Mrs. ARBER,[20] in continuing her investigations of the occurrence of intrafascicular cambium in monocotyledons, has added Alismaceae, Aponogetonaceae, and Hydrocharitaceae to the list of monocotyledonous families, in some member of which this tissue has been

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[18] TELLEFSEN, MARJORIE A., The relation of age to size in certain root cells and vein islets of the leaves of *Salix nigra* Marsh. Amer. Jour. Bot. **9**:121–139. 1922.

[19] SAUNDERS, EDITH R., The leaf-skin theory of the stem: a consideration of certain anatomico-physiological relations in the Spermatophyte shoot. Ann. Botany **36**:135–165. *figs. 34.* 1922.

[20] ARBER, AGNES, Studies on intrafascicular cambium in monocotyledons. V. Ann. Botany **36**:251–256. *figs. 8.* 1922.